AMENDMENTS TO THE SPECIFICATION

In the Sequence Listing:

A Substitute Sequence Listing is submitted herewith. Please enter the Substitute Sequence Listing into the record. Please delete the Sequence Listing filed in the above-captioned patent application on October 3, 2001.

In the Specification:

Please amend the specification as shown below, by entering the following replacement sections marked up to show changes made relative to the immediate prior version, wherein ~~strikethrough~~ indicates material to be deleted and underlining indicates material to be added.

* * *

Please replace the current paragraph found in the Summary of the Invention on page 5, lines 12-22 with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

According to the present invention the peptides are of the formula:

R_1-Val-His-Phe-Phe-Lys-Asn-Ile-R_2

and salts thereof, wherein Val-His-Phe-Phe-Lys-Asn-Ile- is amino acid residues 87-93 of SEQ ID NO:1, and wherein R_1 and R_2 are independently selected from the group consisting of hydrogen, hydroxy, the residue of an amino acid and the residue of a polypeptide; provided that R_1 and R_2 are not both hydrogen or hydroxyl at the same time. The peptide can contain substitutions, deletions or additions thereof, provided that the peptide maintains its function of neutralizing or modulating the production of anti-MBP.

Please replace the current paragraph found in the Summary of the Invention on page 5, line 24 to page 6, line 14, with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

Examples of said peptides are selected from:

MBP75-95 (amino acid residues 75-95 of SEQ ID NO:1)

Lys Ser His Gly Arg Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr

MBP64-78 (amino acid residues 64-78 of SEQ ID NO:1)

Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys Ser His Gly

MBP61-75 (amino acid residues 61-75 of SEQ ID NO:1)

His His Pro Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys

MBP69-83 (amino acid residues 69-83 of SEQ ID NO:1)

Tyr Gly Ser Leu Pro Gln Lys Ser His Gly Arg Thr Gln Asp Glu

MBP80-97 (amino acid residues 80-97 of SEQ ID NO:1)

Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr Pro Arg

MBP91-106 (amino acid residues 91-106 of SEQ ID NO:1)

Lys Asn Ile Val Thr Pro Arg Thr Pro Pro Pro Ser Gln Gly Lys Gly

MBP84-93 (amino acid residues 84-93 of SEQ ID NO:1)

Asn-Pro-Val-Val-His-Phe-Phe-Lys-Asn-Ile

MBP85-94 (amino acid residues 85-94 of SEQ ID NO:1)

Pro-Val-Val-His-Phe-Phe-Lys-Asn-Ile-Val

MBP86-95 (amino acid residues 86-95 of SEQ ID NO:1)

Val-Val-His-Phe-Phe-Lys-Asn-Ile-Val-Thr

MBP87-96 (amino acid residues 87-96 of SEQ ID NO:1)

Val-His-Phe-Phe-Lys-Asn-Ile-Val-Thr-Pro

Please replace the current paragraph found in the Detailed Description of the Invention on page 9, line 29 to page 10, line 12, with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

Based on the present invention, on the basis of the competitive inhibition assays using a series of 41 decapeptides, the MBP epitope for MS anti-MBP has been localized to an area between amino acid 82 and amino acid 98, greater than 40% inhibition of bound anti-MBP and greater than 60% inhibition of free anti-MBP. Based on the highest level of inhibition, the MBP epitope for MS anti-MBP is probably between amino acid 84 and amino acid 96. The smallest common region of the effective decapeptides is from amino acid 87 to amino acid 93. Thus, according to the present invention, the peptides can be illustrated by the following formula:

R_1 -Val-His-Phe-Phe-Lys-Asn-Ile- R_2

and salts thereof, wherein Val-His-Phe-Phe-Lys-Asn-Ile- is amino acid residues 87-93 of SEQ ID NO:1, and wherein R_1 and R_2 are independently selected from the group consisting of hydrogen, hydroxy, the residue of an amino acid and the residue of a polypeptide; provided that R_1 and R_2 are not both hydrogen or hydroxyl at the same time.

Please replace the current paragraph found in the Detailed Description of the Invention on page 10, lines 18-27, with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

When R_1 and R_2 is an amino acid, the amino acid can be selected from naturally occurring amino acids. R_1 and R_2 are not restricted to the amino acids occurring upstream or downstream of Val87 and Ile93 in the human myelin basic protein, as shown in SEQID NO: 1. Various modification, including substitutions, additions or deletions in the upstream and downstream sequences of R_1 and R_2 can be used. In addition, modification, including substitutions, additions or deletions can be made to the sequence -Val-His-Phe-Phe-Lys-Asn-Ile (amino acid residues 87-93 of SEQ ID NO:1), provided that the peptides so produced still function in their intended use; i.e., to neutralize or modulate the production of antibodies to myelin basic protein.

Please replace the current paragraph found in the Detailed Description of the Invention on page 12, lines 7-29, with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

According to one embodiment of the present invention it has been determined that selected peptides substantially corresponding to the amino acid sequence of the h-MBP are effective in neutralizing or modulating the production of anti-MBP. These peptides correspond to the amino acid sequence of the h-MBP from about amino acid residue 61 to about amino acid residue 106. In one example these peptides correspond to the amino acid sequence of the h-MBP from about amino acid residue 75 to about amino acid residue 106, when the peptides are used for the neutralization of free anti-MBP. In a further example, these peptides correspond to the amino acid sequence of the h-MBP from about amino acid residue 82 to about amino acid residue 99, when the peptides are used for the neutralization or modulation of the production of bound anti-MBP. Therefore the peptides are selected from 10 amino acid residues to 25 amino acid residues taken from a continuous amino acid sequence within the sequence shown below (amino acid residues 61-106 of SEQ ID NO:1), provided that said sequence can neutralize or modulate the production of the anti-myelin basic protein.

Amino Acid residues 61-106 of SEQ ID NO:1

61

His His Pro Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys Ser His Gly
Arg Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr Pro
Arg Thr Pro Pro Pro Ser Gln Gly Lys Gly

106

Please replace the current paragraphs found in the Detailed Description of the Invention on page 12, line 30 to page 13, line 24, with the following replacement paragraphs marked up to show changes made relative to the immediate prior version.

Examples of peptides are selected from the group consisting of:

MBP61-75 (amino acid residues 61-75 of SEQ ID NO:1)

His His Pro Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys

MBP64-78 (amino acid residues 64-78 of SEQ ID NO:1)

Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys Ser His Gly

MBP69-83 (amino acid residues 69-83 of SEQ ID NO:1)

Tyr Gly Ser Leu Pro Gln Lys Ser His Gly Arg Thr Gln Asp Glu

MBP75-95 (amino acid residues 75-95 of SEQ ID NO:1)

Lys Ser His Gly Arg Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr

MBP80-97 (amino acid residues 80-97 of SEQ ID NO:1)

Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr Pro Arg

MBP91-106 (amino acid residues 91-106 of SEQ ID NO:1)

Lys Asn Ile Val Thr Pro Arg Thr Pro Pro Pro Ser Gln Gly Lys Gly

In one embodiment of the present invention, the peptides are represented by the formula:

R_1 -Val-His-Phe-Phe-Lys-Asn-Ile-R_2

and salts thereof, wherein Val-His-Phe-Phe-Lys-Asn-Ile is amino acid residues 87-93 of SEQ ID NO:1, and wherein R_1 and R_2 are independently selected from the group consisting of hydrogen, hydroxy, the residue of an amino acid and the residue of a polypeptide; provided that R_1 and R_2 are not both hydrogen or hydroxyl at the same time. The peptide can contain substitutions, deletions or additions thereof, provided that the peptide maintains its function of neutralizing or modulating the production of anti-MBP.

Please replace the current paragraph found in the Detailed Description of the Invention on page 13, line 26 to page 14, line 4, with the following replacement paragraph marked up to show changes made relative to the immediate prior version.

Examples of peptides are selected from:

MBP84-93 (amino acid residues 84-93 of SEQ ID NO:1)

Asn-Pro-Val-Val-His-Phe-Phe-Lys-Asn-Ile

MBP85-94 (amino acid residues 85-94 of SEQ ID NO:1)

Pro-Val-Val-His-Phe-Phe-Lys-Asn-Ile-Val

~~**MBP85-94**~~ **MBP86-95** (amino acid residues 86-95 of SEQ ID NO:1)

Val-Val-His-Phe-Phe-Lys-Asn-Ile-Val-Thr

MBP87-96 (amino acid residues 87-96 of SEQ ID NO:1)

Val-His-Phe-Phe-Lys-Asn-Ile-Val-Thr-Pro